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PETROLEUM PRODUCT STORAGE AND HANDLING AT FEDERAL FACILITIES IN SOUTHERN MANITOBA

by

T. Youmans

Report CP(EP)WNR-88/89-1

Environmental Protection Service

Service de la protection de l'environnement

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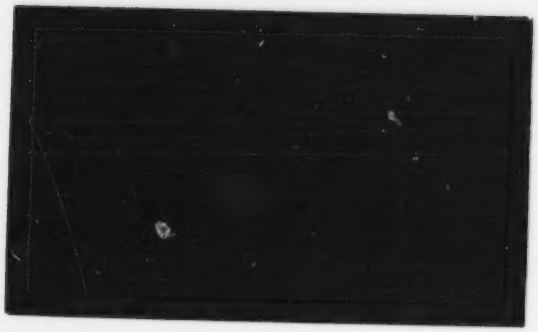

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Environmental Protection
Conservation and Protection
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ABSTRACT

A survey of petroleum product storage and handling practices was undertaken in 1987 and 1988 at federal facilities in southern Manitoba, as part of a continuing program to assess compliance with Manitoba Regulation 97/88R (formerly 156/80). The initial phase of the program involved a survey of the Manitoba Interlake region, completed in early 1987. Inventory data were compiled and compared with the requirements of the regulation. Owners of tank systems that were out of compliance were requested to undertake corrective actions to address the deficiencies that were noted. Most tank systems were out of compliance with the regulation, with the frequency of non-compliance typically more than 30%. Concerns were identified with old tank systems located in sensitive areas of the province.

RESUME

Une étude sur les méthodes d'entreposage et de manutention des produits pétroliers a été effectuée en 1987 et en 1988 dans les installations fédérales du sud du Manitoba, dans le cadre d'un programme permanent visant à évaluer le respect du Règlement n° 97/88R (anciennement 156/80) du Manitoba. La première étape du programme comportait une étude sur la région d'Entre-les-lacs (Manitoba) terminée au début de 1987. On a compilé les données pour ensuite les examiner en regard des exigences prévues au règlement. Les propriétaires de systèmes de réservoirs non conformes ont été priés de prendre les mesures nécessaires pour corriger les problèmes constatés lors de l'étude. La plupart des systèmes de réservoirs contrevenaient au règlement, la moyenne des réservoirs non conformes étant généralement de plus de 30 p. 100. Des inquiétudes ont été soulevées a l'égard des vieux systèmes de réservoirs situés dans des régions vulnérables de la province.

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PETROLEUM PRODUCT STORAGE AND HANDLING AT FEDERAL FACILITIES IN SOUTHERN MANITOBA

1.0 INTRODUCTION

In 1987, the Manitoba District Office of Environmental Protection, Environment Canada, completed an inventory of petroleum product storage tanks at federal facilities in the Manitoba Interlake area. This report details the second phase of the inventory program, carried out in 1987 and 1988, which included a survey of all federal facilities south of the 53rd parallel that were known to have petroleum storage tanks. The 53rd parallel is used as a traditional north-south division line by many government agencies in the province, and most of the federal facilities are located in the southern half of the province. Also, most of the facilities in the north have above-ground tanks, which were not considered as having as high a priority as underground ones. The northern sites will be inventoried later, on an opportunistic basis.

This survey also included an assessment of the compliance status of federal facilities with Manitoba Regulation 97/88R (formerly 156/80), which covers the design, installation and operation of petroleum product storage tanks in the province of Manitoba, as related to environmental protection (Appendix A). The regulation is currently undergoing revision and the amended version is expected to be finalized in late 1988. A national code of practice for underground storage tanks is currently being developed by Environment Canada, in conjunction with various federal and provincial government departments and industry associations. This national code is also expected to be completed later in 1988.

2.0 STUDY OBJECTIVES

The objectives of the inventory and compliance assessment program were to:

1) obtain and update inventory data on petroleum product storage tanks at federal facilities south of the 53rd parallel in Manitoba (excluding the Interlake area)
2) determine the compliance status of the facilities with Manitoba Regulation 97/88R, and
3) apprise all agencies of deficiencies with respect to the regulation and ensure that steps were being taken to address the problems.

3.0 METHODS

The collection of the inventory data involved site visits to most locations during the summer, fall and winter of 1987 and in early 1988. The inventory form developed for the Interlake area survey was used to collect data from the owners and/or operators at each site. In many cases, there was insufficient information available at the sites, and further information was obtained where possible from other departmental or agency staff.

During the on-site inspections, operators who were not carrying out proper inventory reconciliation methods were advised on the required procedures as developed by Manitoba Environment and Workplace Safety and Health. Any other deficiencies with the tank systems were noted and, in most cases, the owner and/or operator were advised of these at the time of the inspection. In cases where deficiencies were noted, a follow-up letter was sent to the owner of the system, outlining the remedial action required and the requested completion date.

4.0 RESULTS AND DISCUSSION

Leaks of petroleum products from underground and above-ground tanks have occurred in significant numbers in Manitoba since the early 1970s. In 1987, for example, leaks were known to have occurred in 38 underground tanks (Ediger, pers. comm.). In many cases, leaks, often small ones, occur over long periods of time, and go unnoticed until complaints are received about fumes in basements or taste and odour problems in well water supplies. More serious situations involving explosions in basements or sewer lines have also occurred. By the time some of these leaks are discovered, significant areas of ground water and soil have been contaminated, resulting in extensive clean-up requirements, many costing $50,000 - $100,000, and some as high as $500,000 - $750,000, with clean-up periods lasting up to five years.

There are an estimated 4000-5000 underground tanks in Manitoba, with the majority installed at retail stations (Ediger, pers. comm.). However, a significant number are used in non-retail applications, such as for diesel and heating oil storage for furnaces, boilers and stand-by power units, or for fuelling commercial vehicles. In Manitoba, about 2% of underground tanks have been confirmed to have leaked and resulted in environmental contamination (Ediger, pers. comm.). Many other leaks have likely gone unreported.

Most leaks occur because of corrosion failures in the tanks or the piping system (Young, 1988). Corrosion often occurs between the high and low water levels of the water table, where the

tank may be intermittently exposed to moisture. Clay soils can be particularly corrosive to unprotected tanks, and failures in new tanks have been known to occur in as little as two years. The clay soils in the Winnipeg area are known to be particularly "aggressive", and, as such, unprotected or improperly installed tanks in this area can be at a high risk of failure within fairly short time periods. Another cause of corrosion failure in tanks can be the placement of a new unprotected tank system next to an old one, where the new tank acts as the anode, often resulting in failure of the new tank in a short time period.

Table 1 lists the federal departments and agencies that own storage tank systems in southern Manitoba and the sites where tanks are located. In total, the 13 agencies, including seven federal departments, five crown corporations and Canadian Pacific Railway (CPR) own 125 underground and 85 above-ground tank systems. CPR was included in the survey, because the company is under federal jurisdiction in Manitoba for environmental related matters. Table 1 also presents an outline of the deficiencies noted at each department or agency at the time of the first inspection by EP personnel, with respect to the main provisions of Manitoba Regulation 97/88R. More detailed information on the types and numbers of deficiencies is presented in Table 2, which shows the criteria against which tank installations were evaluated.

The criteria used for evaluating compliance with the main provisions of the Manitoba regulation were as follows:

1) Inventory reconciliation - reconciliation of tank output and input against product-on-hand is required for all underground tanks for each day of operation, and for all above-ground tanks (except overhead tanks) on a weekly basis. Exemptions are provided in the regulation for waste oil tanks and those connected to heating appliances, where tank output is not metered.

2) Cathodic protection - all underground tanks installed in 1976 or later must have been properly protected against corrosion. (e.g. sacrificial anodes, impressed current, fiberglass tanks)

3) Leak testing - all tanks (except overhead tanks) installed in 1976 or later must have been leak-tested at the time of installation, using an approved test method.

4) Tank abandonment - Underground tanks that have been out of service for 12 consecutive months or more must be emptied and removed from the ground within 30 days, or filled with an inert material to prevent re-use.

5) Diking - above-ground tanks of 4550 L (1000 IG) or larger

TABLE 1
COMPLIANCE SUMMARY
PETROLEUM PRODUCT STORAGE TANKS AT FEDERAL FACILITIES
IN MANITOBA SOUTH OF 53°
(EXCLUDING INTERLAKE AREA)

DEPT./AGENCY/ LOCATION	UNDERGROUND TANKS				ABOVE-GROUND TANKS[1]			
	NUMBER	NUMBER NOT IN COMPLIANCE	REASONS*	OTHER NOTES*	NUMBER	NUMBER NOT IN COMPLIANCE	REASONS*	OTHER NOTES*
AGRIC. CANADA								
- BRANDON RES. STN.	3	3	A	--	0	--	--	--
- MORDEN RES. STN.	2	2	A	F	0	--	--	--
AIR CANADA								
- WINNIPEG AIRPORT	6	3	B	--	0	--	--	--
ATOMIC ENERGY								
- WNRE PINAWA	6	3	B	--	5	0	--	--
CBC								
- CARMAN	2	0	--	F	0	--	--	--
- BALDY MTN.	1	0	--	H	0	--	--	--
CNR								
- WINNIPEG	6	5	A, C, D	--	22	6	E	--
- BRANDON	0	--	--	--	0	0	--	G
- DAUPHIN	0	--	--	--	2	2	E	G
CPR								
- WINNIPEG	9	1	B, C	--	5	0	H	H
- BRANDON	1	1	B, C	--	1	0	--	--
ENVIR. CANADA - PARKS								
- RIDING MTN.[2]	10	6	A, B, C	F, G	0	--	--	--
HEALTH & WELFARE - MED. SVCES.[3]								
- BERENS RIVER	0	--	--	--	3	3	E	--
- BLOODVEIN	0	--	--	--	4	?	H	--
- LITTLE GRAND RAPIDS	0	--	--	--	3	?	H	G
- PAUINGASSI	0	--	--	--	1	0	--	G
- POPLAR RIVER	0	--	--	--	5	?	H	--
INDIAN AFFAIRS[4]								
- BERENS RIVER	0	--	--	--	8	6	A, E	F, G
- BIRDTAIL SIOUX	2	2	A	--	0	--	--	--
- BROKENHEAD	2	2	A	F	0	--	--	--
- BUFFALO POINT	0	--	--	--	2	2	A	--
- CRANE RIVER	2	2	B, C	F	0	--	--	--
- DAKOTA PLAINS	2	0	--	--	0	--	--	--
- EBB & FLOW	2	2	A, B, C	--	0	--	--	--

TABLE 1 (cont'd)

DEPT./AGENCY/ LOCATION	UNDERGROUND TANKS NUMBER	NUMBER NOT IN COMPLIANCE	REASONS*	OTHER NOTES*	ABOVE-GROUND TANKS[1] NUMBER	NUMBER NOT IN COMPLIANCE	REASONS*	OTHER NOTES*
INDIAN AFFAIRS (cont'd)								
- FT. ALEXANDER	1	1	A	F	0	--	--	--
- HOLLOW WATER	2	2	A, B, C	F	0	--	--	--
- LITTLE BLACK RIVER	2	2	A	--	0	--	--	--
- LITTLE GRAND RAPIDS	0	--	--	--	2	2	E	F, G
- LONG PLAIN	2	2	D	--	0	--	--	--
- PAUINGASSI	0	--	--	--	5	5	A, E	--
- PINE CREEK	3	1	D	--	0	--	--	--
- POPLAR RIVER	0	--	--	--	6	0	--	F
- ROSEAU RIVER	2	2	A	H	0	--	--	--
- SANDY BAY	2	2	A, B	--	0	--	--	--
- SIOUX VALLEY	2	2	A, B	--	0	--	--	--
- SWAN LAKE	2	2	A	--	0	--	--	--
- VALLEY RIVER	2	1	D	--	0	--	--	--
NATIONAL DEFENCE[3]								
- CFB WINNIPEG	11	0	--	F	4	0	--	--
- CFB PORTAGE	6	0	--	F, G	4	0	--	--
- CFB SHILO	9	0	--	--	3	0	--	--
RCMP								
- WINNIPEG	4	4	B, C	--	0	--	--	--
TRANSPORT CANADA[3]								
- WINNIPEG AIRPORT	14	7	A, B, C, D	F	0	--	--	--
- DAUPHIN AIRPORT	3	3	A	--	0	--	--	--
VIA RAIL								
- WINNIPEG	2	?	H	F	0	--	--	--
TOTAL	125	59	--	--	85	22	--	--

* KEY

A - Inadequate inventory records or records not available
B - No leak testing or info. unknown for 1976 or newer tanks
C - No cathodic prot. or info. unknown for 1976 or newer tanks
D - Abandoned tank(s), tank(s) not removed from ground
E - Dikes not present or inadequate
F - Recommendation made to test, upgrade or replace tank(s)
G - One or more tank(s) to be taken out of service or removed
H - Insufficient info., unable to assess

NOTES:

1 Excluding tanks less than 4550 L (1000 IG) capacity.
2 Excludes tanks owned by tenants on federal property.
3 Many of the listed tanks will be taken out of service in next 1-2 years when switch to electricity completed.
4 Includes tanks owned by Bands or private individuals on Reserves.
5 Excludes Canex tanks (owned by Shell Oil).

TABLE 2

AREAS OF NON-COMPLIANCE WITH MANITOBA REG. 97/88R

DEPARTMENT/AGENCY	NUMBER OF TANKS OUT OF COMPLIANCE* / TOTAL NUMBER OF TANKS REGULATED FOR: INVENTORY RECONCILIATION	CATHODIC PROTECTION**	TANK TESTING**	ABANDONED TANKS	DIKING
Agriculture Canada	5/5	0/3	0/3	N/A	N/A
Air Canada	0/2	0/5	3/5	N/A	N/A
Atomic Energy of Canada	0/2	0/2	3/4	N/A	N/A
CBC	0/0	0/2	0/2	N/A	N/A
CNR	3/6	2/2	0/2	2/2	6/18
CPR	0/12	2/7	2/7	N/A	N/A
Environment Canada - Parks	6/6	2/2	2/2	N/A	N/A
Health and Welfare-Med. Svces.	UNKNOWN	N/A	N/A	N/A	UNKNOWN
Indian Affairs	21/29	11/23	12/23	4/4	12/23
National Defence	0/31	0/12	0/12	N/A	0/11
RCMP	0/2	1/4	4/4	N/A	N/A
Transport Canada	7/7	3/5	3/5	3/3	N/A
Via Rail	0/2	0/0	0/0	N/A	N/A
TOTAL	42/104 (40%)	21/67 (31%)	29/69 (42%)	9/9	18/52 (35%)

* Includes tanks where information was unknown.
** Applicable to tanks installed in 1976 or later.
N/A - not applicable

must be surrounded by an impermeable dike of sufficient capacity to contain 110% of the capacity of the tank, or 110% of the capacity of the largest tank where more than one tank is involved.

Tank systems that were inspected and found to not meet the above requirements, or where the information was not available, were considered to be out of compliance with the Manitoba regulation.

Many facilities inspected were found to have one or more deficiency with respect to Manitoba Regulation 97/88R. The most common area of non-compliance involved lack of testing of tank systems prior to putting them into operation (Table 2). Forty-two percent of tank systems were in this category. This included tank systems where information was unknown.

The second-most common deficiency, although highest in actual number (42), involved inadequate or non-existent inventory reconciliation records, particularly for underground tank systems. Most operators were subsequently instructed on the proper methods of inventory control. Therefore, the present status of inventory reconciliation practices may be better than the data in Table 1 or Table 2 indicate, since these reflect the situation at the time of the first inspection of a particular facility.

The third and fourth-most common areas of non-compliance involved lack of adequate diking around above-ground tanks and tanks having been installed without proper corrosion protection (including tanks where information was not available).

Abandoned tanks were also noted to be a problem in certain locations. The requirement to remove abandoned tanks is designed to ensure that underground tanks will not be put back in service after prolonged periods of non-use and perhaps neglect, or where water may have accumulated in the tanks, thereby accelerating tank corrosion.

In cases where tank systems had not been properly tested or cathodically protected at the time of installation (or where information was not available), owners were not requested to carry out remedial measures to meet the Manitoba requirements, because the pending amendments to Manitoba Regulation 97/88R and the new national code are expected to require that all tanks over a certain age be upgraded or replaced within a specified time period. Additional requirements will likely involve the installation of monitoring wells or other leak detection methods. Several tank owners were, however, requested to undertake hydrostatic testing of their tank systems, where tanks were older than 15 years or where tanks were thought to have been improperly installed.

4.1 OVERVIEW OF COMPLIANCE STATUS BY DEPARTMENT OR AGENCY

A brief overview of the status of tank systems surveyed at each department and agency is given below:

1) Agriculture Canada

Inventory records were inadequate at both facilities surveyed. Recommendations were made to test/upgrade two old tank systems at the Morden Research Station.

2) Air Canada

All tanks have been installed within the last 12 years, and are cathodically protected. Inventory records were not checked, but were assumed to be adequate on the basis of discussions with Air Canada staff. Tank testing information was not available for three tank systems.

3) Atomic Energy of Canada (AECL) Ltd.

Tank systems appeared to be well-designed, operated and maintained. Tank testing information was not available for three tank systems installed since 1976.

4) Canadian Broadcasting Corporation (CBC) Ltd.

The two repeater stations surveyed are unmanned facilities, but are checked periodically by maintenance personnel. A recommendation was made to hydrostatically test one of the tank systems because of its age.

5) Canadian National Railway (CNR)

Most of CNR's storage tank systems are located in Winnipeg. Two smaller fuelling facilities are located in Brandon and Dauphin. The Brandon facility is currently out of service and the tanks are to be sold and removed from the site in 1988. CNR was requested to construct dikes around two tanks located in Dauphin. The tanks, however, may be relocated or taken out of service in the near future.

Storage tanks in Winnipeg are located at Transcona and the Symington Yard. CNR was requested to improve or construct dikes around six tanks, to improve inventory reconciliation procedures for three tanks and to remove two abandoned tanks.

6) Canadian Pacific Railway (CPR)

Most of CPR's operations are located in Winnipeg at its main yards and Weston Shops. All tank systems appeared to be properly designed, operated and maintained. Tank testing information was not available for two tank systems.

7) Environment Canada - Canadian Parks Service

All of the Parks Service facilities surveyed are located in Riding Mountain National Park. There was a lack of proper inventory control records for all tank systems. However, after the

initiation of an inventory reconciliation program, one tank was found to be leaking and is due to be replaced with a new system. Information was lacking on many of the installation details for the tank systems, although many of the tanks are quite old and had been installed prior to the promulgation of the Manitoba regulation in 1976. Information was not available on whether or not testing had been done for two tank systems installed since 1976.

Tank systems owned by two retailers in the Park were surveyed but were not included in the Table 1 or 2 data, since they are considered to be under provincial jurisdiction.

8) Health and Welfare Canada

All of the Health and Welfare tank systems are located at nursing stations on the east side of Lake Winnipeg. Inspections were not carried out at most facilities, because the department is in the process of converting to electric heating at the stations, and most of the existing tank systems are to be removed or taken out of service in the near future. In some cases, standby fuel supplies will be maintained, along with some supplies of gasoline for vehicle fuelling. Inspections will be made when changes have been completed at these facilities.

9) Indian Affairs

In most cases, facilities inspected on Reserves were either Band-owned and operated, or privately-owned by Band or non-Band members. Most operators were not maintaining adequate inventory reconciliation records. Improper diking, lack of specific information on tank installations (including tank testing information) and abandoned tanks were also identified as problems at several locations.

10) National Defence

Tank systems at all three bases were well-designed, constructed and maintained. In two cases, recommendations were made to test underground tank systems that were more than 15 years old and did not have any known cathodic protection systems.

11) Royal Canadian Mounted Police (RCMP)

All of the facilities surveyed appeared to be well-designed, constructed and maintained. Tank testing information was not available for any of the four tank systems.

12) Transport Canada

The majority of facilities are located at the Winnipeg Airport, with some storage tanks at Dauphin Airport. Tank systems owned and operated by tenants at the Winnipeg Airport were not included in the inventory, since owners included oil companies, car rental agencies or organizations such as flying clubs, which are under provincial jurisdiction.

Inventory reconciliation procedures were inadequate for seven tank systems, and information was not available on testing or tank construction for three tank systems. The department was requested to remove three abandoned tanks.

13) Via Rail

In late 1987, Via Rail bought from CNR two underground tanks located at the Via station in Winnipeg. A spill occurred shortly after the transfer of ownership of the tank systems to Via. The tank systems were closed down until April 1988, when most of the remedial work and site clean-up was completed. Leak testing of one of the tanks revealed that it was leaking, and removal of the tank system was requested.

4.1 TANK SYSTEM STATISTICS

Table 3 presents the data gathered on the various details of tank installations for the facilities surveyed. In many cases, facility owners were unable to provide all of the information requested during the survey. Some of the findings from the survey data are as follows:

1) Both underground and above-ground tanks tended to be fairly well distributed over the entire age range, with the fewest number of tanks in both cases in the less-than-3-years-old category. Over 20% of the underground tanks were more than 25 years old, while over 30% were more than 15 years old. Most tank systems over 25 years old, and many over 15 years old may be approaching the end of their expected life, depending on the soil conditions and type of corrosion protection, if any.

2) Gasoline and diesel fuel were by far the most common products stored in underground tanks, while heating oil, diesel fuel and gasoline were the most common products found in above-ground tanks. Products listed under "Other" in Table 3 included Bunker C, lube oils, reclaimed oils and similar products.

3) Suction-type pumping/distribution systems appeared to be the most common, although many types were unknown. Suction pumps are generally preferable to submersibles, as they will not pressurize lines during fuel delivery, and will thus result in smaller product losses in the event of a leak in the piping system.
For this reason, the use of submersible pumps is limited or prohibited in certain jurisdictions.

4) Inventory control records for underground tanks were found to be inadequate at more than 30% of the tank systems

TABLE 3

SUMMARY OF DATA COLLECTED AT FEDERAL FACILITIES IN MANITOBA SOUTH OF 53° (EXCLUDING INTERLAKE AREA)

PARAMETER	NO. OF TANKS UNDERGROUND	NO. OF TANKS ABOVE-GROUND
TANK CAPACITY (L)		
(4550 ((1000 IG)	12	not applic.
4550-13650 (1000-3000 IG)	78	31
13651-22750 (3001-5000 IG)	16	9
22751-45500 (5001-10000 IG)	8	10
)45500 ()10000 IG)	6	32
Unknown	5	3
TANK CONSTRUCTION		
Steel (incl. unknown types)	59	85
Coated Steel	12	0
w/Sacrificial Anode	45	0
w/Impressed Current	1	0
Fiberglass	2	0
Unknown	6	0
TANK AGE (base year 1988)		
(3 yr	11	4
3-7 yr	22	12
8-15 yr	28	27
16-25 yr	13	16
)25 yr	26	12
Unknown	25	14
PRODUCT		
Gasoline	60	15
Diesel Fuel	32	18
Heating Oil	13	20
Aviation Gas	0	2
Jet Fuel	1	6
Waste Oil	9	0
Other	1	13
Empty	9	11
PUMPING/DISTRIB. SYSTEM		
Suction	45	51
Submersible	0	0
Gravity	0	16
Other	4	0
Unknown	76	18

TABLE 3 (Cont'd)

INSTALLER		
Petroleum Contractor	31	2
General Contractor	5	14
Self	8	29
Unknown	81	40
TANK TESTING		
Air Pressure	3	1
Hydrostatic	41	0
Not Done	5	0
Not Required	0	26
Visual Inspection	3	0
Unknown	73	58
INVENTORY RECONCILIATION		
Complete	42	20
Incomplete	11	2
Not Done	30	1
Not Required	32	49
Unknown	10	13
DIKING		
Satisfactory	N/A	42
Not Satisfactory	N/A	26
Unknown	N/A	17
SOIL PERMEABILITY		
High	38	8
Medium	20	7
Low	56	45
Unknown	10	25
DISTANCE TO DRINKING WATER SUPPLY		
⟨20 m	3	3
20-200 m	6	35
⟩200 m	82	41
Unknown	34	6
DISTANCE TO SURFACE WATER		
⟨20 m	3	3
20-200 m	5	47
⟩200 m	115	35
Unknown	2	0
DISTANCE TO WATER TABLE		
⟨3 m	3	5
3-10 m	0	10
⟩10 m	52	31
Unknown	69	39

inspected. The majority of above-ground tanks did not require routine reconciliation of inventories, because most were connected to heating appliances or were for use as stand-by fuel.

5) Diking was inadequate at more than 30% of the tank systems inspected. The types of deficiencies noted included lack of diking, poorly constructed dikes, or use of inappropriate diking materials.

6) Thirty percent of the underground tanks were located in areas that were regarded as having soils of high permeability, the two main areas being Shilo and Riding Mountain National Park. Sensitivity to leaks at these locations would, therefore, be high, because of a high risk of ground water contamination. Site sensitivity also depends on the distance to the water table, and the proximity of wells, water supplies and surface waters. Although drinking water supplies and surface waters in most areas were found to be more than 200 metres away from tank systems, leaks from storage tanks have been known to travel long distances, and distances of more than 200 metres may not afford much protection from the effects of leaking tanks, particularly in soils of high permeability.

5.0 CONCLUSIONS

A survey of federal facilities in Manitoba south of 53° latitude revealed that most petroleum product storage tank systems owned by federal departments and agencies were out of compliance with one or more of the requirements of Manitoba Regulation 97/88R. The types of deficiencies noted included:

- non-existent or incomplete inventory reconciliation records,
- tanks installed since 1976 without proper corrosion protection or without having been leak tested,
- abandoned tanks that were not removed from the ground or otherwise rendered unusable,
- inadequate diking of above-ground tanks.

Thirty percent of the underground tank systems were more than 15 years old, and many of these, particularly those over 25 years old, may be approaching the end of their expected life. High priority should be given to replacement of these systems by the respective owners.

Thirty percent of the tank systems were located in areas of high soil permeability, Shilo and Riding Mountain National Park in particular. Soil permeability is one of the factors affecting

site sensitivity and susceptibility to ground water contamination. High priority should also be given to upgrading or replacing tanks over 15 years of age in sensitive areas, since most tanks older than that were installed without adequate corrosion protection.

6.0 REFERENCES

Young, A.D., Jr. 1988. Underground storage tanks: management's latest challenge. *JAPCA*, 38(1): 62-68.

APPENDIX A

THE ENVIRONMENT ACT
(C.C.S.M. c. E125)

Storage and Handling of Gasoline and Associated Products Regulation

Regulation 97/88 R
Filed January 29, 1988

Definitions
1 In this regulation,

"abandoned" means, when used in reference to a storage tank system, any storage tank system that has been in disuse for the purpose of conveying gasoline or associated products for more than 12 consecutive months; ("abandonné")

"aboveground tank" means any tank which is located at grade, and includes vertical tanks; ("réservoir hors-sol")

"alter" means any enlargement of a storage tank system, any change in the configuration of the piping or tank or tanks, or the replacement of any tank; ("changer")

"approved" means approved by the department in writing; ("approuvé")

"associated product" means petroleum or any derivative thereof, except gasoline, which is in a liquid state at ambient temperature and pressure; ("produit connexe")

"conveying" means the utilization of a storage tank system for the movement of gasoline or associated product; ("déplacement")

"critical area" means any area so designated from time to time by the minister; ("zone atteinte")

"empty" means, when used in reference to a storage tank system, void of its contents as far as is practicable by such means as suction, pouring or pumping; ("vide")

"flash point" means the lowest temperature determined using a Tagliabue closed-up tester, at which vapour of a gasoline or associated product forms a flammable mixture in air; ("point d'éclair")

LOI SUR L'ENVIRONNEMENT
(C.P.L.M., c. E125)

Règlement sur le stockage et la manutention de l'essence et de ses produits connexes

Règlement 97/88 R
Date de dépôt : le 29 janvier 1988

Définitions
1 Les définitions qui suivent s'appliquent au présent règlement.

"abandonné" Lorsque ce terme s'applique à un système de réservoir de stockage, il s'entend de tout système de réservoir de stockage qui ne sert plus à déplacer de l'essence ou des produits connexes depuis plus de 12 mois consécutifs. ("abandoned")

"approuvé" Approuvé par écrit par le ministère. ("approved")

"changer" Agrandissement d'un système de réservoir de stockage, modifications apportées à la configuration de la tuyauterie ou du réservoir ou remplacement du réservoir. ("alter")

"déplacement" Utilisation d'un système de réservoir de stockage pour déplacer de l'essence ou des produits connexes. ("conveying")

"déversement" Perte d'essence ou de produit connexe de plus de 68,2 L (15 gal) contenu dans un système de réservoir de stockage, un pipe-line ou un véhicule et qui se répand à la surface du sol ou de l'eau ou s'y infiltre. ("spill")

"essence" Produit liquide dérivé du pétrole dont le point d'éclair est inférieur à 37,8 °C et qui est utilisé principalement dans les moteurs à combustion interne. ("gasoline")

"exploitant" Selon le cas :
a) personne qui est chargée de l'exploitation et de l'entretien quotidien d'un système de réservoir de stockage;
b) dans le cas d'un véhicule, personne responsable de ce véhicule. ("operator")

"fuite" Déversement anormal d'essence ou de produit connexe contenu dans un système de réservoir de stockage ou un pipe-line. ("leakage")

"gasoline" means a liquid product of petroleum that has a flash point below 37.8°C and is designed primarily for use in an internal combustion engine; ("essence")

"leakage" means any discharge of gasoline or associated product from a storage tank system or pipeline other than through the usual function for which the storage tank system or pipeline was designed; ("fuite")

"normal" means, when used in reference to an apparent loss of gasoline or associated product from an underground storage tank system, 3/4 of 1% of the capacity of the storage tank or 3/4 of 1% of the volume of gasoline or associated product conveyed through the storage tank system, whichever is greater; and, when used in reference to an apparent loss of product from an aboveground storage tank system, 2 1/2% of the capacity of the storage tank, or 2 1/2% of the volume of gasoline or associated product conveyed through the storage tank system, whichever is greater; or such other lesser percentage as the minister may from time to time specify; ("normale")

"operator" means
(a) a person who is responsible for the day-to-day maintenance and operation of a storage tank system, or
(b) when referring to a vehicle, the driver in charge of the vehicle; ("exploitant")

"overhead tank" means any tank which is supported above grade and includes horizontal tanks; ("réservoir surélevé")

"owner" means, when used in reference to an abandoned storage tank system, the person having the possessary rights to, and care, control or management of and over the storage tank system; ("propriétaire")

"sensitive area" means any area so designated by the minister from time to time; ("zone fragile")

"spill" means any loss of gasoline or associated product in excess of 68.2 litres (15 gallons) from a storage tank system, pipeline or vehicle onto or into the soil or water; ("déversement")

"storage tank system" means a storage tank and all vent, fill and withdrawal piping associated therewith; ("système de réservoir de stockage")

"normale" Lorsque ce terme s'applique à une perte apparente d'essence ou de produit connexe contenu dans un système de réservoir de stockage souterrain, il s'entend du plus grand de 3/4 de 1 % de la capacité du réservoir de stockage ou de 3/4 de 1 % du volume d'essence ou de produit connexe déplacé dans le système de réservoir de stockage et, lorsque ce terme s'applique à une perte apparente d'essence ou de produit connexe contenu dans un système de réservoir de stockage hors-sol, il s'entend du plus grand de 2 1/2 % de la capacité du réservoir de stockage ou de 2 1/2 % du volume d'essence ou de produit connexe déplacé dans le système de réservoir de stockage, ou d'un pourcentage inférieur que fixe le ministre. ("normal")

"point d'éclair" Température la plus basse déterminée au moyen d'un appareil d'essai Tagliabue à vase clos à laquelle les vapeurs d'essence ou de produit connexe forment un mélange inflammable dans l'air. ("flash point")

"produit connexe" Pétrole ou produit dérivé du pétrole, à l'exception de l'essence, qui est à l'état liquide à la température et à la pression ambiantes. ("associated product")

"propriétaire" Lorsque ce terme s'applique à un système de réservoir de stockage abandonné, il s'entend de la personne qui a des droits possessoires dans le système et qui est chargée de l'entretien et de la gestion de celui-ci et qui en est responsable. ("owner")

"réservoir hors-sol" Tout réservoir situé au niveau du sol, y compris les réservoirs verticaux. ("aboveground tank")

"réservoir surélevé" Réservoir supporté au-dessus du niveau du sol, y compris les réservoirs horizontaux. ("overhead tank")

"système de réservoir de stockage" Tout système de réservoir de stockage, y compris les évents et la tuyauterie de remplissage et de retrait. ("storage tank system")

"véhicule" Camion-citerne, camion-plate-forme, remorque, semi-remorque, tracteur et autres moyens de transport, ainsi que leurs installations, conçus pour transporter de l'essence ou des produits connexes, autre que l'essence alimentant le véhicule, ou capables de transporter de tels produits. ("vehicle")

"vide" Lorsqu'il s'applique à un système de réservoir de stockage, ce terme signifie évacué autant qu'il est possible de le faire, notamment par aspiration, vidange ou pompage. ("empty")

"vehicle" means a tank truck, stake truck, trailer, semi-trailer, tractor and other conveyance and appurtenances thereof designed for or capable of transporting gasoline or associated product, other than fuel used in the operation of that vehicle. ("véhicule")

Application

2 Subject to sections 7, 8, 10 and 11, aboveground storage tanks of capacity of less than 4545 litres (1,000 gallons) that are connected to a heating appliance, and overhead tanks of capacity of less than 4545 litres (1,000 gallons), are exempt from the provisions of this regulation.

General requirements

3 No person shall construct or reconstruct or use or permit the use of a storage tank system that does not meet the minimum standards as prescribed in section 1 of Schedule A.

Requirements in a critical area

4 Upon the designation of a critical area, the owner or operator of a storage tank system in the critical area shall

(a) within 30 days of the designation

(i) have the tests as prescribed in section 3 of Schedule A conducted, and

(ii) where these tests show a leakage, comply with section 23 of this regulation; and

(b) where the tests conducted under subclause (a)(i) show that the storage tank system is not leaking,

(i) upgrade the system, within one year of the designation, in accordance with section 4 of Schedule A, and

(ii) in writing, notify the department of the upgrading method employed, within 30 days of the completion of upgrading.

Requirements in a sensitive area

5 Upon the designation of a sensitive area and within the dates prescribed by the minister, the owner or operator of a storage tank system in the sensitive area shall

(a) have the tests as prescribed in section 3 of Schedule A conducted, and where those tests show a leakage, comply with section 23 of this regulation; and

(b) where the tests conducted under clause (a) show that the storage tank system is not leaking,

(i) upgrade the system in accordance with section 4 of Schedule A, and

(ii) in writing, notify the department of the upgrading method employed within 30 days of the completion of upgrading.

"zone atteinte" Zone désignée telle par le ministre. ("critical area")

"zone fragile" Zone désignée telle par le ministre. ("sensitive area")

Application

2 Sous réserve des articles 7, 8, 10 et 11, les réservoirs de stockage hors-sol d'une capacité de moins de 4545 L (1 000 gal) qui sont raccordés à un appareil de chauffage et les réservoirs surélevés d'une capacité de moins de 4545 L (1 000 gal) ne sont pas visés par le présent règlement.

Exigences

3 Il est interdit de construire, de reconstruire, d'utiliser ou de permettre l'utilisation d'un système de réservoir de stockage qui n'est pas conforme aux normes minimales prescrites à l'article 1 de l'annexe A.

Exigences applicables aux zones atteintes

4 Lorsqu'une zone est désignée zone atteinte, le propriétaire ou l'exploitant d'un système de réservoir de stockage situé dans la zone atteinte prend les mesures suivantes :

a) dans les 30 jours de la désignation :

(i) il fait faire les essais prescrits à l'article 3 de l'annexe A,

(ii) si les essais révèlent une fuite, il se conforme aux dispositions de l'article 23 du présent règlement;

b) si les essais faits en application du sous-alinéa a)(i) ne révèlent aucune fuite :

(i) dans l'année suivant la désignation, il apporte les améliorations nécessaires au système conformément à l'article 4 de l'annexe A,

(ii) dans les 30 jours suivant la fin des travaux d'amélioration, il avise par écrit le ministère des méthodes employées.

Exigences applicables aux zones fragiles

5 Lorsqu'une zone est désignée zone fragile, le propriétaire ou l'exploitant d'un système de réservoir de stockage situé dans la zone fragile prend, dans les dates prescrites par le ministre, les mesures suivantes :

a) il fait faire les essais prescrits à l'article 3 de l'annexe A et se conforme aux dispositions de l'article 23 du présent règlement si les essais révèlent une fuite;

b) si les essais faits en application de l'alinéa a) ne révèlent aucune fuite :

(i) il apporte les améliorations nécessaires au système conformément à l'article 4 de l'annexe A,

(ii) dans les 30 jours suivant la fin des travaux d'amélioration, il avise par écrit le ministère des méthodes employées.

Variation by minister

6 The minister may vary the requirements of Schedule A when a person affected by this regulation, makes a written application to the department which satisfies the minister that the applicant's proposal meets or surpasses the requirements as prescribed in Schedule A.

Prohibitions

7 No person shall directly or indirectly contaminate the soil or water by causing, suffering or permitting spillage of gasoline or associated product from a storage tank system or vehicle.

8 No owner or operator shall directly or indirectly contaminate the soil or water by causing, suffering or permitting leakage of gasoline or associated product from a storage tank system or vehicle.

9 No person shall directly or indirectly contaminate any body of water or any underground water supply by causing, suffering or permitting the dumping, depositing, dropping, throwing, discarding or leaving of gasoline or associated product.

10 No person shall transfer gasoline or associated product from a storage tank system to a vehicle or from a vehicle to a storage tank system without supervising the transfer at all times in such a manner as to be able to immediately shut off the flow of gasoline or associated product during the transfer of products.

11 No person shall directly or indirectly cause or permit the overflow of gasoline or associated product from a storage tank system.

Acceptable uses of associated products

12 Notwithstanding section 9, the use of associated products is acceptable for

(a) application to road surfaces by provincial government departments and agencies, municipal corporations or authorized agents of provincial government departments and agencies and municipal corporations within departmental guidelines or regulations;

(b) application of pesticides; and

(c) other practices as the minister may consider acceptable from time to time.

Modifications des exigences

6 Le ministre peut apporter des modifications aux exigences énoncées à l'annexe A lorsqu'une personne visée par le présent règlement présente une demande écrite au ministère démontrant de façon satisfaisante au ministre qu'elle se conforme aux exigences de l'annexe A ou à des normes plus sévères.

Interdiction

7 Nul ne peut polluer directement ou indirectement le sol ou l'eau en y déversant de l'essence ou un produit connexe provenant d'un système de réservoir de stockage ou d'un véhicule, en permettant un tel déversement ni en le tolérant.

8 Il est interdit à un propriétaire ou à un exploitant de polluer directement ou indirectement le sol ou l'eau en y laissant fuir de l'essence ou un produit connexe provenant d'un système de réservoir de stockage ou d'un véhicule, en permettant une telle fuite ou en la tolérant.

9 Nul ne peut polluer directement ou indirectement une masse d'eau ou une masse d'eau souterraine en y déversant, en y déposant, en y laissant tomber goutte à goutte, en y lançant, en y jetant ni en y laissant de l'essence ou un produit connexe, en permettant de tels gestes ni en les tolérant.

10 Nul ne peut transvaser de l'essence ni un produit connexe d'un système de réservoir de stockage à un véhicule ou vice-versa à moins de surveiller constamment le transvasage de façon à ce qu'il soit possible de couper le flot d'essence ou de produit connexe pendant l'opération.

11 Nul ne peut directement ou indirectement faire déborder de l'essence ni un produit connexe d'un système de réservoir de stockage ni permettre un tel débordement.

Emplois permis de produits connexes

12 Malgré l'article 9, l'emploi de produits connexes est permis dans les cas suivants :

a) application sur la chaussée par les ministères et les organismes provinciaux, les corporations municipales ou les agents autorisés des ministères provinciaux, des organismes et des corporations municipales, pourvu que l'application soit faite conformément aux directives ou aux règlements des ministères;

b) application de pesticides;

c) autres emplois que le ministre juge acceptables.

Registration

13 No person shall construct, install or operate a storage tank system without first completing and filing with the department a form as set out in Schedule B.

14 No person shall alter an existing storage tank system without registering the plans of alteration in writing with the department.

Testing

15 No person shall set into operation a new storage tank system without first having the tests prescribed in section 2 of Schedule A conducted.

16 No person shall set into operation a storage tank system on which alterations have been done without first having the tests prescribed in section 2 of Schedule A conducted.

17(1) The operator of an underground storage tank system, other than a storage tank system connected to a heating appliance or a waste oil collection tank, shall

(a) ensure that the tank or tanks are gauged or dipped, including a water dip, each day of operation;

(b) reconcile gauge or dip readings with meter readings at least daily;

(c) maintain a record of gauge, dip and water dip readings and reconciliations on a form approved by the department;

(d) retain the records described in clause (c) for at least two years and have the records available for inspection by an environment officer;

(e) inform the department forthwith of any losses above normal as indicated by four consecutive reconciliations;

(f) in critical and sensitive areas, submit a copy of all reconciliation records every three months to the department; and

(g) upon the request of the department, submit reconciliation records for a period specified by the department.

17(2) The operator of an aboveground storage tank system, other than a storage tank system connected to a heating appliance or waste oil collection tank, shall

(a) ensure that the tank or tanks are gauged or dipped, including a water dip, at least weekly;

(b) reconcile gauge or dip readings with receipt and withdrawal records at least weekly;

Enregistrement

13 Nul ne peut construire, installer ni exploiter un système de réservoir de stockage sans d'abord remplir et déposer auprès du ministère la formule figurant à l'annexe B.

14 Nul ne peut apporter des changements à un système de réservoir de stockage sans d'abord présenter les plans des changements au ministère en vue de leur enregistrement.

Essais

15 Nul ne peut exploiter un nouveau système de réservoir de stockage sans d'abord faire faire les essais prescrits à l'article 2 de l'annexe A.

16 Nul ne peut exploiter un système de réservoir de stockage ayant fait l'objet de changements sans d'abord faire faire les essais prescrits à l'article 2 de l'annexe A.

17(1) L'exploitant d'un système de réservoir de stockage souterrain qui n'est ni raccordé à un appareil de chauffage ni à un réservoir de collection d'huile usée :

a) s'assure que le réservoir est jaugé tous les jours lorsqu'il est en exploitation, de manière à déterminer le niveau d'essence ou de produit connexe et, le cas échéant, la présence d'eau dans le réservoir;

b) fait au moins une fois par jour la conciliation des lectures de jaugeage et de compteur;

c) tient, sur une formule approuvée par le ministère, un registre des lectures de jaugeage et de présence d'eau et des conciliations;

d) garde le registre visé à l'alinéa c) pendant au moins deux ans et le met à la disposition de l'agent de l'environnement qui désire l'inspecter;

e) informe promptement le ministère de toute perte supérieure à la normale attestée par quatre conciliations consécutives;

f) dans les zones atteintes et les zones fragiles, présente trimestriellement au ministère une copie du registre de conciliation;

g) à la demande du ministère, présente le registre de conciliation visant la période fixée par celui-ci.

17(2) L'exploitant d'un système de réservoir de stockage hors-sol qui n'est ni raccordé à un appareil de chauffage ni à un réservoir de collection d'huile usée :

a) s'assure que le réservoir est jaugé au moins une fois par semaine de manière à déterminer le niveau d'essence ou de produit connexe et, le cas échéant, la présence d'eau dans le réservoir;

b) fait au moins une fois par semaine la conciliation des lectures de jaugeage et des registres de remplissage et de retrait;

(c) maintain a record of gauge, dip and water dip readings and reconciliations on a form approved by the department;
(d) retain the records described in clause (c) for at least two years and have these records available for inspection by an environment officer;
(e) inform the department forthwith of any losses above normal as indicated by two consecutive reconciliations;
(f) in critical and sensitive areas, submit a copy of all reconciliation records every three months to the department; and
(g) upon the request of the department, submit reconciliation records for a period specified by the department.

17(3) The operator of a storage tank system which is partly or entirely at or below grade, other than a storage tank connected to a heating appliance or a waste oil collection tank, shall
(a) determine cumulative apparent losses from the tank or tanks on a semi-annual basis, with readings taken on January 15 and July 15 or within seven days from these dates; and
(b) inform the department forthwith if the cumulative loss from the storage tank system exceeds 1/2 of 1% of throughput for the period under consideration.

18 Notwithstanding section 17, the minister may, subject to such terms and conditions as the minister considers appropriate, vary the requirements of section 17 when an operator files a written proposal with the department outlining the methods and procedures to be used by the operator to conform with the intent and purpose of section 17.

19 In accordance with sections 4, 5, 15, 16 and 21, the operator of a storage tank system shall, within 30 days of the completion of testing, submit the test results in the prescribed manner on a form as set out in Schedule C.

20 The owner or operator of a storage tank system shall maintain records of all tests prescribed in Schedule A.

21 Upon request of the department, the operator of a storage tank system shall have the tests prescribed in section 3 of Schedule A conducted within 30 days or such other period of time as may be prescribed by the department.

c) tient, sur une formule approuvée par le ministère, un registre des lectures de jaugeage et de présence d'eau et des conciliations;
d) garde le registre visé à l'alinéa c) pendant au moins deux ans et le met à la disposition de l'agent de l'environnement qui désire l'inspecter;
e) informe promptement le ministère de toute perte supérieure à la normale attestée par deux conciliations consécutives;
f) dans les zones atteintes et les zones fragiles, présente trimestriellement au ministère une copie du registre de conciliation;
g) à la demande du ministère, présente le registre de conciliation visant la période fixée par celui-ci.

17(3) L'exploitant d'un système de réservoir de stockage situé partiellement ou totalement au niveau du sol ou au-dessous du niveau du sol et qui n'est raccordé ni à un appareil de chauffage ni à un réservoir de collection d'huile usée :
a) mesure semestriellement le total des pertes apparentes du réservoir, en prenant des lectures le 15 janvier et le 15 juillet ou dans les sept jours suivant ou précédant ces dates;
b) informe promptement le ministère de toute perte totale représentant plus de 0,5 % de la quantité totale de liquide introduit dans le système de réservoir de stockage pendant le semestre visé.

18 Malgré l'article 17, le ministre peut, sous réserve des modalités et conditions qu'il estime appropriées, modifier les exigences de cet article si un exploitant dépose auprès du ministère un projet écrit énonçant les méthodes qu'il entend utiliser pour se conformer à l'esprit de l'article 17.

19 Conformément aux articles 4, 5, 15, 16 et 21, l'exploitant d'un système de réservoir de stockage présente les résultats des essais, dans les 30 jours suivant la fin de ceux-ci, au moyen de la formule figurant à l'annexe C.

20 Le propriétaire ou l'exploitant d'un sytème de réservoir de stockage tient un registre de tous les essais prescrits à l'annexe A.

21 Le ministère accorde un délai de 30 jours ou tout autre délai qu'il juge souhaitable à l'exploitant auquel il demande de faire les essais visés à l'article 3 de l'annexe A.

Spills and leaks

22 In the event of a spill or leak from a vehicle, pipeline or storage tank system, the operator of the vehicle, pipeline or storage tank system shall immediately

(a) notify an environment officer; and

(b) take such steps as are necessary to abate the discharge, clear the area affected and restore the environment to the satisfaction of the environment officer.

23 When a leak is demonstrated in testing under section 4, 5 or 21, the operator of the storage tank system shall promptly

(a) empty that part of the system that is leaking;

(b) affix an appropriate visible closure notice on the leaking system;

(c) make such repairs as are necessary;

(d) where the leak is from a tank, upgrade that tank to meet the requirements of section 1 of Schedule A; and

(e) where the leak was caused by corrosion, upgrade all related storage tank systems which do not meet the requirements of section 1 of Schedule A, to meet the minimum requirements prescribed in section 4 of Schedule A.

Abandoned underground storage tank system

24 Where an underground storage tank system has been abandoned, the owner or operator of the storage tank system shall, within 30 days,

(a) empty the system of all product;

(b) remove the piping from the ground, or purge the piping of flammable vapours and products and permanently seal the ends of the piping by capping, and either

(i) remove the tank from the ground, and remove such contaminated soil and gasoline or associated product if the soil around and under the tank is contaminated with gasoline or associated product, or

(ii) where a test conducted in accordance with section 3 of Schedule A has shown that the tank does not leak, purge the tank of flammable vapours and products and fill the tank with inert material; and

(c) clean the area affected and restore the environment to the satisfaction of the environment officer.

25 The minister may, upon receipt of a written request from an owner, extend the period of time, with such terms and conditions as the minister considers appropriate, for a storage tank system to be in disuse without it being deemed abandoned.

Déversements et fuites

22 Si un véhicule, un pipe-line ou un système de réservoir de stockage fuit ou cause un déversement, l'exploitant :

a) avise un agent de l'environnement;

b) prend les mesures nécessaires pour maîtriser l'écoulement, nettoyer la zone touchée et enrayer les dommages causés à l'environnement d'une manière que l'agent de l'environnement juge satisfaisante.

23 Si les essais visés aux articles 4, 5 et 21 révèlent une fuite, l'exploitant du système de réservoir de stockage prend promptement les mesures suivantes :

a) il vide la partie du système qui fuit;

b) il appose un avis de cessation d'exploitation approprié à un endroit bien en vue sur le système qui fuit;

c) il fait les réparations nécessaires;

d) s'il s'agit d'un réservoir qui fuit, il y apporte les améliorations nécessaires pour qu'il soit conforme aux exigences de l'article 1 de l'annexe A;

e) si la fuite est attribuable à la corrosion, il apporte les améliorations nécessaires aux systèmes de réservoirs de stockage connexes qui ne sont pas conformes aux exigences de l'article 1 de l'annexe A de manière à ce qu'ils soient conformes aux exigences de l'article 4 de cette même annexe.

Système de réservoir de stockage souterrain abandonné

24 Le propriétaire ou l'exploitant d'un système de réservoir de stockage souterrain abandonné prend les mesures qui suivent dans les 30 jours de la fin de l'exploitation :

a) il vide le système de tout produit qui s'y trouve;

b) il enlève la tuyauterie du sol ou purge celle-ci des produits et des vapeurs inflammables et bouche de façon étanche les extrémités des tuyaux et, selon le cas :

(i) il enlève le réservoir du sol et enlève la terre autour et au-dessous du réservoir qui est imbibée d'essence ou de produit connexe,

(ii) si un essai fait conformément à l'article 3 de l'annexe A ne révèle aucune fuite, il purge le réservoir des vapeurs et des produits inflammables qu'elle contient et le remplit avec un matériau inerte;

c) il prend les mesures nécessaires pour nettoyer la zone touchée et enrayer les dommages causés à l'environnement d'une manière que l'agent de l'environnement juge satisfaisante.

25 Sur demande écrite d'un propriétaire, le ministre peut, selon les modalités et conditions qu'il juge souhaitables, proroger la période de temps pendant laquelle un réservoir inutilisé n'est pas réputé être abandonné.

Relocation of aboveground storage tanks

26(1) A welded aboveground storage tank may be relocated for similar use if

(a) it is tested after installation but prior to use in accordance with subsection 2(4) of Schedule A and found to be sound; and

(b) it is diked in accordance with subsection 1(2) of Schedule A.

26(2) Riveted aboveground storage tanks shall not be relocated for use.

Coming into force

27 This regulation comes into force on the later of

(a) the date The Environment Act c. 26 of The Statutes of Manitoba 1987-88 comes into force; or

(b) the date this regulation is filed with the Registrar of Regulations.

Déménagement d'un réservoir de stockage hors-sol

26(1) Un réservoir de stockage hors-sol qui est soudé peut être déménagé et être utilisé à des fins semblables si les conditions qui suivent sont remplies :

a) après son installation, mais avant son utilisation, le réservoir est soumis à des essais, conformément au paragraphe 2(4) de l'annexe A, qui démontrent qu'il est en bon état;

b) il est entouré de digues conformément au paragraphe 1(2) de l'annexe A.

26(2) Il est interdit de déménager des réservoirs de stockage hors-sol qui sont rivetés, en vue de les utiliser de nouveau.

Entrée en vigueur

27 Le présent règlement entre en vigueur à la dernière des dates suivantes :

a) la date d'entrée en vigueur de la Loi sur l'environnement, chapitre 26 des Lois du Manitoba de 1987-1988;

b) la date du dépôt du présent règlement auprès du registraire des règlements.

SCHEDULE A

STANDARDS FOR STORAGE TANKS AND SYSTEMS

CONSTRUCTION AND INSTALLATION STANDARDS

1(1) Underground storage tanks

(a) shall be constructed, shop tested, installed and maintained in accordance with the Underwriters' Laboratories of Canada S603.1 latest edition or S603 latest edition with impressed current cathodic protection in the case of steel tanks; and

(b) shall be constructed, shop tested and installed in accordance with Underwriters' Laboratories of Canada S615, latest edition in the case of fiberglass tanks.

1(2) An impressed current cathodic protection system

(a) shall consist of a number of anodes connected to an external direct current power source, installed in such a manner that the static potential between the storage tank system and a saturated copper/copper sulfate half cell in contact with the soil shall read negative 850 millivolts or more negative; and

(b) shall be designed and installed employing sound engineering methods and taking into consideration factors such as the configuration of multiple tank systems, soil resistivity and existing structures in the immediate area.

1(3) Shop fabricated overhead and aboveground storage tanks (vertical and horizontal) shall be constructed and shop tested in accordance with Underwriters' Laboratories of Canada S601 latest edition and shall bear a U.L.C. label.

1(4) Field erected aboveground tanks shall be constructed in accordance with American Petroleum Institute Standard 650, latest edition.

1(5) Aboveground and overhead tanks shall be surrounded by a dike and the diked area shall be so designed, constructed and maintained to retain not less than 110% of the capacity of the tank or 110% of the capacity of the largest tank where more than one tank is enclosed in the diked area and to prevent infiltration of gasoline and associated product into the subsurface.

TESTING OF NEW SYSTEMS

2(1) All piping systems shall be pressure tested with air, water or product, to at least 344.74 kPa (50 psig) or one and one-half times the maximum operating pressure, whichever is greater.

ANNEXE A

NORMES APPLICABLES AUX RÉSERVOIRS DE STOCKAGE ET AUX SYSTÈMES

NORMES DE CONSTRUCTION ET D'INSTALLATION

1(1) Les réservoirs de stockage souterrains sont conformes aux exigences suivantes :

a) dans le cas des réservoirs en acier, ils sont fabriqués, mis à l'essai à l'usine, installés et entretenus conformément à la dernière édition de la norme S603.1 ou S603 des Laboratoires des Assureurs du Canada, et ils sont dotés d'un système de protection cathodique par courant appliqué;

b) dans le cas des réservoirs en fibre de verre, ils sont fabriqués, mis à l'essai à l'usine et installés conformément à la dernière édition de la norme S615 des Laboratoires des Assureurs du Canada.

1(2) Le système de protection cathodique par courant appliqué est conforme aux exigences suivantes :

a) il comporte un certain nombre d'anodes reliées à une source de courant continu externe, installées de manière à créer une tension électrostatique négative minimale de 850 millivolt entre le système de réservoir de stockage et une électrode en cuivre et en sulfate de cuivre saturé mise en contact avec le sol;

b) sa conception et son installation sont réalisées suivant des principes techniques valables et compte tenu de facteurs tels que la configuration des systèmes comprenant plusieurs réservoirs, la résistivité du sol et les constructions déjà érigées à proximité du système de réservoir.

1(3) Les réservoirs de stockage surélevés et hors-sol (verticaux et horizontaux) fabriqués en usine sont construits et mis à l'essai à l'usine conformément à la dernière édition de la norme S601 des Laboratoires des Assureurs du Canada et portent l'étiquette ULC.

1(4) Les réservoirs hors-sol érigés sur place sont construits conformément à la dernière édition de la norme 650 du American Petroleum Institute.

1(5) Les réservoirs hors-sol et surélevés sont entourés d'une digue conçue, construite et entretenue de sorte que l'espace ainsi entouré puisse retenir au moins 110 % de la capacité du réservoir ou 110 % de la capacité du plus grand des réservoirs érigés dans cet espace et de manière à empêcher l'essence et les produits connexes de s'infiltrer profondément dans le sol.

ESSAI D'ÉTANCHÉITÉ DES NOUVEAUX SYSTÈMES

2(1) Pour procéder à l'essai d'étanchéité des systèmes de tuyauterie, ceux-ci sont remplis d'air, d'eau ou de produit sous une pression égale à la plus élevée des deux pressions suivantes : la pression manométrique minimale de 344,74 kPa (50 lb/po^2), ou une fois et demie la pression d'exploitation maximale.

2(2) When piping systems are pressure tested
(a) with air, the lines shall be soaped and shall retain the pressure for a minimum period of two hours after the source of pressure has been removed; or
(b) with liquid, the lines shall retain the pressure for a minimum of six hours after the source of pressure has been removed; and
(c) the pressure shall be measured by an instrument calibrated in increments not greater than 3.45 kPa.

2(3) Underground storage tanks shall be tested prior to operating (after backfilling) the storage tank system utilizing the Kent-Moore Tester System or other approved system. A test is not required prior to conducting pump or meter tests. Should the surface be paved following the setting into operation of the storage tank system, a further test is required.

2(4) Aboveground vertical storage tanks shall be tested immediately after first filling with product, in the following manner:
(a) the tank shall be dipped every 12 hours for two consecutive days;
(b) temperature readings at the top, bottom and middle of the tank shall be taken and a mean temperature of product determined; and
(c) corrections for expansion, contraction, or both, of product shall be applied to the calculations;
and any variations from the original liquid levels other than those accounted for by the expansion or contraction will indicate leakage.

2(5) Overhead horizontal tanks shall be visually inspected for leaks.

TESTING OF EXISTING SYSTEMS

3(1) Underground storage tank systems with a suction pump shall be tested with the Kent-Moore Tester System or other approved system.

3(2) Underground storage tank systems with a submersible pump will be tested as follows:
(a) the tank shall be tested with a Kent-Moore Tester System or other approved system; and
(b) all piping associated with the system shall be tested as in subsections 2(1) and (2) above.

2(2) L'essai d'étanchéité des systèmes de tuyauterie est effectué selon les exigences suivantes :
a) si de l'air sous pression est introduit dans le système, les tuyaux sont enduits d'une solution savonneuse et la pression doit demeurer stable durant une période minimale de deux heures après que la source de pression a été débranchée;
b) si du liquide est introduit sous pression dans le système, la pression dans les tuyaux doit demeurer stable durant une période minimale de six heures après que la source de pression a été débranchée;
c) l'échelle de l'appareil servant à mesurer la pression est divisé en unités ne représentant pas plus de 3,45 kPa.

2(3) L'essai d'étanchéité des réservoirs de stockage souterrains est effectué avant la mise en exploitation (après le remblayage) du système de réservoir au moyen d'un système d'essai Kent-Moore ou d'un autre système approuvé. La vérification n'est pas requise avant une mise à l'essai de la pompe ou du compteur. Si la surface du sol est pavée après la mise en exploitation du système de réservoir de stockage, il faut procéder à une autre vérification.

2(4) L'essai d'étanchéité des réservoirs de stockage hors-sol verticaux est effectué immédiatement après le premier remplissage. L'essai s'effectue comme suit :
a) le réservoir est jaugé toutes les 12 heures pendant deux jours consécutifs;
b) la température du produit est mesurée au haut, au bas et au milieu du réservoir et la température moyenne est ensuite déterminée;
c) les résultats obtenus sont corrigés en fonction du facteur d'expansion ou de contraction du produit, ou des deux facteurs, s'il y a lieu.
Tout écart de niveau qui, par rapport au niveau initial, excède la variation attribuable à l'expansion ou à la contraction est un indice de fuite.

2(5) L'étanchéité des réservoirs horizontaux surélevés fait l'objet d'un contrôle visuel.

ESSAI D'ÉTANCHÉITÉ DES SYSTÈMES EXISTANTS

3(1) L'essai d'étanchéité des systèmes de réservoir de stockage souterrains pourvus d'une pompe aspirante est effectué au moyen d'un système d'essai Kent-Moore ou d'un autre système approuvé.

3(2) L'essai d'étanchéité des systèmes de reservoir de stockage souterrains pourvus d'une pompe immergée est effectué comme suit :
a) au moyen du système d'essai Kent-Moore ou d'un autre système approuvé;
b) l'étanchéité de la tuyauterie reliée au système est mise à l'essai conformément aux paragraphes 2(1) et (2) des présentes.

3(3) Aboveground vertical tanks shall be tested in accordance with subsection 2(4) above.

3(4) Overhead horizontal tanks shall be visually inspected for leaks.

UPGRADING OF EXISTING STORAGE TANK SYSTEMS

4(1) When a test shows an underground storage tank system to be sound, it may be upgraded with the addition of

(a) impressed current cathodic protection; or

(b) installation of an approved internal non-corrosive tank lining.

4(2) A dike shall be constructed around aboveground storage tanks and the diked area shall be so designed, constructed and maintained to retain not less than 110% of the capacity of the tank or 110% of the capacity of the largest tank where more than one tank is enclosed in the diked area, and to prevent infiltration of gasoline and associated product into the subsurface.

3(3) L'essai d'étanchéité des réservoirs verticaux hors-sol est effectué conformément au paragraphe 2(4) des présentes.

3(4) L'étanchéité des réservoirs horizontaux surélevés fait l'objet d'un contrôle visuel.

AMÉLIORATIONS APPORTÉES AUX SYSTÈMES DE RÉSERVOIR DE STOCKAGE EXISTANTS

4(1) Si un essai d'étanchéité ne révèle aucune fuite dans un système de réservoir de stockage souterrain, les améliorations qui suivent peuvent être apportées au système :

a) protection cathodique par courant appliqué;

b) installation, à l'intérieur du réservoir, d'un revêtement inoxydable approuvé.

4(2) Les réservoirs de stockage hors-sol sont entourés d'une digue conçue, construite et entretenue de sorte que l'espace ainsi entouré puisse retenir au moins 110 % de la capacité du réservoir ou 110 % de la capacité du plus grand des réservoirs érigés dans cet espace et de manière à empêcher l'essence et les produits connexes de s'infiltrer profondément dans le sol.

SCHEDULE B

REGISTRATION FORM

STORAGE TANK SYSTEM INSTALLATION

Business Name: _____

Business Address: _____

_____

Owner: _____

Operator: _____

Installer: _____

Please check one of the following:

- New Installation, no existing tankage at this location [ ]
- New Installation, all existing tankage to remain [ ]
- Tank Replacement, some or all existing tanks/piping to be removed [ ]

Provide information as outlined below:

Tank No.						
Tank Type aboveground/ underground/steel/ fiberglass						
Tank Capacity						
Tank Manufacturer						

ANNEXE B

FORMULE D'ENREGISTREMENT

INSTALLATION D'UN SYSTÈME DE RÉSERVOIR DE STOCKAGE

raison sociale : _____

adresse commerciale : _____

_____

propriétaire : _____

exploitant : _____

installateur : _____

cocher l'une des cases suivantes :

- nouvelle installation; aucun réservoir ne se trouve à cet endroit [ ]
- nouvelle installation; les réservoirs en place demeurent [ ]
- remplacement de réservoir; les réservoirs ou la tuyauterie sont enlevés totalement ou partiellement [ ]

fournir les renseignements demandées ci-dessous :

n° de réservoir						
genre de réservoir hors-sol souterrain/acier/ fibre de verre						
capacité du réservoir						
fabricant du réservoir						

SCHEDULE C

TEST RESULTS

Station Name: _____

Address: _____

Test Performed By: _____

Date: _____

HYDROSTATIC TEST

Time	P.S.I.G.	Gallons Injected	Temp. °F.

Time	P.S.I.G.	Gallons Injected	Temp. °F.

48 HOUR DIP TEST

Time	Dip Reading	Gallons	Change	Temp.

PRESSURE TEST

Tested with

[ ] Liquid

[ ] Air

Initial Pressure _____

Duration of Test _____

Final Pressure _____

The Queen's Printer for the Province of Manitoba

ANNEXE C

RÉSULTATS DES ESSAIS

nom de la station : _____

adresse : _____

personne qui a fait l'essai : _____

date : _____

ESSAI HYDROSTATIQUE SOUS PRESSION

heure	lb/po^2 manomètre	gallons injectés	temp. °F.

heure	lb/po^2 manomètre	gallons injectés	temp. °F.

ESSAI DE JAUGEAGE (pendant 48 h)

heure	lecture de jaugeage	gallons	changement	temp. °F

ESSAI SOUS PRESSION

essai fait avec

[ ] du liquide
[ ] de l'air

pression intiale _____

durée de l'essai _____

pression finale _____

L'Imprimeur de la Reine du Manitoba